

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions and listings of claims in the above-referenced application:

1 1. (Currently amended) An integrated circuit (IC) chip comprising:
2 a square-wave audio signal generator adapted to generate square-wave ~~signals~~
3 signal at an audio frequencies frequency;
4 a counter adapted to digitally count from zero to a predetermined number;
5 a register adapted to hold a volume control value;
6 a comparator connected to said counter and connected to said register, said
7 comparator adapted to compare ~~the a present count from the counter~~ with the volume
8 control value ~~and to~~ produce a modulation signal; and
9 an AND gate connected to said square-wave ~~audio~~ signal generator and
10 connected to said comparator, said AND gate adapted to combine, in a logical AND
11 operation, the ~~audio frequency~~ square-wave signal with the modulation signal to
12 generate an output signal that is on, when both the square-wave signal and the
13 modulation signal are on, and off when one or both of the square-wave signal and the
14 modulation signal are off.

1 2. (Currently amended) The IC recited in claim 1 wherein said
2 square-wave audio signal generator generates a square-wave audio signal ~~generator~~
3 having a frequency within a range from 500 Hz to five KHz.

1 3. (Original) The IC recited in claim 1 wherein said counter is a 5-bit
2 counter adapted to count from 0 to 31.

1 4. (Original) The IC recited in claim 1 wherein said counter operates
2 at a counter frequency on the order of MHz.

1 5. (Original) The IC recited in claim 1 wherein said register is a pulse
2 width register having five bits.

1 6. (Original) The IC recited in claim 1 wherein the integrated circuit
2 chip is an application specific integrated circuit chip (ASIC).

1 7. (Currently amended) A method of generating [a] modulated
2 square-wave audio signal, the method comprising:

3 generating a square-wave audio signal having a first audio frequency;
4 repeatedly counting a predetermined range of values generating count signals;
5 modulating the count signal[s] with a volume control signal resulting in [a]
6 modulation signal; ~~and~~

7 modulating the square-wave ~~audio~~ signal with the modulation signal to
8 generate a modulated square-wave signal that is on when both the square wave signal
9 and the modulation signal are on and off when one or both of the square-wave signal
10 and the modulation signal are off.

1 8. (Original) The method recited in claim 7 wherein the first audio
2 frequency is within a range from 500 Hz to five KHz.

1 9. (Currently amended) The method recited in claim 7 wherein the
2 ~~digital~~ repeatedly counting step counts from 0 to 31.

1 10. (Currently amended) The method recited in claim 7 wherein the
2 ~~digital~~ repeatedly counting step operates at a counter frequency on the order of MHz.

1 11. (Currently amended) The method recited in claim 7 wherein the
2 volume control signal is set at a value within a range counted by the ~~digital~~ repeatedly
3 counting step.

1 12. (Canceled)

1 13. (Currently amended) An apparatus comprising:
2 an integrated circuit (IC) chip adapted to generate a modulated ~~audio~~
3 ~~frequency~~ square-wave signal;
4 an amplifier subsystem connected to said IC chip, the amplifier subsystem
5 adapted to filter and amplify the modulated square-wave ~~audio~~ signal ~~and to amplify~~
6 ~~the filtered audio signal~~, wherein said IC chip comprises:
7 a square-wave ~~audio~~ signal generator adapted to generate a square-
8 wave signals signal at an audio frequencies frequency;
9 a counter adapted to digitally count from zero to a predetermined
10 number;
11 a register adapted to hold a volume control value;
12 a comparator connected to said counter and connected to said register,
13 said comparator adapted to compare ~~the~~ a present count from the counter with the
14 volume control value ~~and~~ to produce a modulation signal; and
15 an AND gate connected to said square-wave ~~audio~~ signal generator
16 and connected to said comparator, said AND gate adapted to combine, in a
17 logical AND operation, the ~~audio~~ ~~frequency~~ square-wave signal with the
18 modulation signal to generate a modulated output signal that is on, when both
19 the square wave signal and the modulation signal are on, and off when one or
20 both of the square-wave signal and the modulation signal are off.

1 14. (Currently amended) The apparatus recited in claim 13 wherein
2 said square-wave ~~audio~~ signal generator generates a square-wave ~~audio~~ signal having
3 a frequency within a range from 500 Hz to five KHz.

1 15. (Original) The apparatus recited in claim 13 wherein said counter
2 is a 5-bit counter adapted to count from 0 to 31.

1 16. (Original) The apparatus recited in claim 13 wherein said counter
2 operates at a counter frequency on the order of MHz.

1 17. (Original) The apparatus recited in claim 13 wherein said register
2 is a pulse width register having five bits.

1 18. (Original) The apparatus recited in claim 13 wherein said
2 amplifier subsystem comprises a resistor-capacitor (RC) filter connected to a fixed
3 gain amplifier.